

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN**

DSM IP ASSETS, B.V. & DSM BIO-BASED
PRODUCTS & SERVICES B.V.,

Plaintiffs,

vs.

LALLEMAND SPECIALTIES, INC. &
MASCOMA LLC,

Defendants.

Civil Action No. 16-cv-497

DECLARATION OF PHILIP GREEN

I, Philip Green, declare as follows:

I. Introduction

1. I am a principal in the consulting firm of Hoffman Alvary & Company LLC. I was retained by Nutter McClennen & Fish, LLP, counsel for Lallemand Specialties, Inc. (“Lallemand”) and Mascoma LLC (“Mascoma”) (collectively, “Defendants”). I was asked to provide independent and objective expert testimony in this matter relating to the form and computation of damages that would adequately compensate DSM IP Assets, B.V. and DSM Bio-Based Products & Services, B.V. (collectively, “DSM” or “Plaintiffs”) if it were found that Defendants infringed U.S. Patent No. 8,795,998 (“the ’998 patent” or “the patent-in-suit”). DSM asserted that Defendants infringed the ’998 patent through the sale of certain genetically-modified yeast strains (the “Accused Products”).

2. In December 2017, I submitted an expert report on behalf of Defendants, which provided my opinions regarding the damages due DSM related to Lallemand’s alleged infringement.¹ My report also included rebuttal to opinions provided by Plaintiffs’ damages expert, Dr. Jesse David, in an expert report submitted in November 2017.² In March 2018, I submitted a supplemental expert report in which I considered certain additional information related to damages.³ During the damages phase of the trial in May 2018, I testified regarding the opinions set forth in my Initial and Supplemental Expert Reports, and provided rebuttal testimony to Dr. David’s opinions.

3. Dr. David and I used different methodologies to reach our respective conclusions. In his report (and later at trial), Dr. David opined that—assuming infringement and validity—total damages owed to DSM for the period of August 2014 through September 2017 amounted to

¹ Expert Report of Philip Green, December 21, 2017 (“Initial Green Report”).

² Expert Report of Jesse David, Ph.D., November 21, 2017 (“David Report”).

³ Supplemental Expert Report of Philip Green, March 16, 2018 (“Supplemental Green Report”).

\$32.71 million to \$40.89 million.⁴ This computation was based on certain assumptions, including that: (1) Lallemand would have continued to sell non-infringing TransFerm to customers, (2) the amount of non-infringing TransFerm that Lallemand would have continued to sell would never have exceeded the amount it sold in 2013, and (3) no other non-infringing alternatives existed.⁵ Based on these assumptions, the David Report concluded that Lallemand's total "at risk" incremental profit—including for most customers the Yeast Price as well as the entire MGT fee—was \$81.8 million.⁶ The David Report's conclusions assume that the parties would then apply a royalty rate of 40% to 50% to this base.⁷ Dr. David's analysis also assumed that the parties' expectations that DSM might eventually enter the market would "provide a modest upward influence on the negotiated royalty."⁸

4. In contrast, the analysis I presented in my Initial Report and at trial isolated the portion of the MGT fees received by Lallemand that is specifically attributable to the yield-enhancing characteristics of the Accused Products. I first calculated the MGT revenue that Lallemand and Mascoma received per thousand gallons of ethanol produced by customers using the yeast strains accused of infringement. I then considered the relative contributions of technologies that are not claimed by the patent-in-suit, such as enzyme expression, but are incorporated in the Accused Products. I next analyzed Lallemand's sales of non-infringing TransFerm to ascertain the portion of the MGT fees related to yield enhancement.⁹

I concluded that Lallemand and DSM would have agreed to a royalty rate of 25% of the MGT revenue attributable to the '998 patented technology. I used this royalty rate to compute a range of royalties amounting to between \$0.56 and \$0.94 per thousand gallons produced.¹⁰ As I testified at trial, because it isolates the benefit of the use of the '998 technology from other aspects of the Accused Products that are not claimed by the '998 patent, a royalty based on the gallons of bioethanol produced is most reflective of the economic benefit received by Lallemand for its use of the technology.¹¹

5. At trial, I testified that a reasonable royalty rate for Lallemand's use of the '998 patent was \$0.56 per thousand gallons of ethanol produced using the Accused Products.¹² This rate as applied to the base of 8.783 billion gallons amounted to damages of \$4.95 million.¹³

⁴ David Report, para. 88.

⁵ David Report, paras. 41-44.

⁶ David Report, para. 46.

⁷ David Report, paras. 83-88.

⁸ David Report, para 86.

⁹ Initial Green Report, pp. 33-37.

¹⁰ Initial Green Report, pp. 40-44.

¹¹ 5/14/18 A.M. Trial Transcript, 25:9-11, 39:25-40:9.

¹² 5/14/18 A.M. Trial Transcript, 39:25-40:9, 40:18-42:9.

¹³ 5/14/18 A.M. Trial Transcript, 43:5-13.

6. During the liability phase of the trial, the jury found the Defendants liable for infringement of the '998 patent with respect to sales of the Accused Products.¹⁴ Following the damages phase of the trial (which included testimony by Dr. David and me), the jury also returned a verdict regarding damages owed DSM for Defendants' infringement amounting to \$14,500,000.¹⁵ The Court later entered judgment awarding DSM damages in the full amount of the jury verdict.¹⁶

7. DSM's brief supporting its motion for what it terms "Supplemental Damages," post-trial royalty, and pre- and post-judgment interest was submitted on June 20, 2018 ("Plaintiffs Post-Trial Damages Brief").¹⁷ On the same date, DSM moved for equitable relief, including a permanent injunction and an ongoing royalty.¹⁸ Dr. David contemporaneously submitted a declaration providing certain opinions and supporting computations related to these issues (the "David Declaration").¹⁹

8. Following the May 2018 trial, I have been asked by counsel for Defendants to:

- Calculate the appropriate damages due DSM for Lallemand's sales of Accused Products after the end of the damages period presented at trial through the date judgment was entered by the Court (October 16, 2017 through the date of final judgment, or the "Intervening Period");
- Provide an independent opinion regarding the appropriate post-trial royalty due DSM to the extent Lallemand continues to sell the Accused Products.

The following provides the background and support for my conclusions on these issues.

II. Damages During the Intervening Period

9. As discussed, the jury verdict awarded damages of \$14,500,000. This award reflects damages compensating DSM for Lallemand's infringement based on the period presented to the jury at trial. At trial, both Dr. David and I testified to damages beginning in August 2014, when the '998 patent issued. The analyses and testimony I provided at trial computed damages due

¹⁴ Infringement Verdict, May 10, 2018. [REDACTED]

[REDACTED] (see DSM's Brief in Support of Its Motion for Supplemental Damages and Pre- and Postjudgment Interest (Dkt. 378), filed June 20, 2018, pp. 1-2). For the purposes of the subsequent analyses presented herein, I have therefore assumed [REDACTED].

¹⁵ Damages Verdict, May 14, 2018.

¹⁶ Judgment in Favor of Plaintiffs, entered May 16, 2018.

¹⁷ DSM's Brief in Support of Its Motion for Supplemental Damages and Pre- and Postjudgment Interest (Dkt. 378), filed June 20, 2018.

¹⁸ DSM's Brief in Support of Their Motion for Equitable Relief (Dkt. 390), filed June 20, 2018.

¹⁹ Declaration of Jesse David, Ph.D., June 20, 2018 (Dkt. 385).

DSM related to Lallemand's sales of the Accused Products through October 2017. Dr. David's analysis presented Lallemand's sales through September 2017. For purposes of this analysis, and consistent with the David Declaration, I have assumed that the judgment awarded at trial reflects damages related to Lallemand's sales of the Accused Products from August 2014 through October 15, 2017. October 15, 2017 is the mid-point between the dates I presented in my damages analysis and those presented by Dr. David.²⁰

10. Since the jury award does not specify the method by which it determined the damages (e.g., running royalties based on gallons of ethanol produced, or an allocation of potential profits), I have considered various methodologies by which the Court could evaluate the amounts due DSM for Lallemand's sales of the Accused Products during the Intervening Period. These methodologies focus on extrapolating the jury's award based on the sales volumes through October 15, 2017, and could include expressing the royalties as: (1) a percentage of total MGT and Yeast revenue; (2) dollars per gallon produced using infringing yeast, or (3) another alternative royalty structure.²¹

11. The David Declaration concludes that damages [REDACTED] are due DSM for Lallemand's sales of the Accused Products through May 16, 2018. These damages are derived by extrapolating a royalty rate from the jury award using a base of total revenues (both MGT Fee and Yeast Price Component). Specifically, from August 2014 through October 15, 2017, Lallemand's total revenue from sales of the Accused Products amounted to [REDACTED]. Applying the jury's award to these total sales results in an effective royalty rate of [REDACTED]. From mid-October 2017 and through mid-May 2018, Lallemand's total additional revenue from sales of the Accused Products amount to [REDACTED]. Therefore, as described in the David Declaration, on a percentage-of-total-revenue basis, the payment due DSM through the date of final judgment would amount to [REDACTED].²²

12. The David Declaration indicates that the choice of royalty base employed may have only [REDACTED]²³ I disagree. As demonstrated below, Dr. David's calculation results in an additional [REDACTED] to DSM for sales made from August 2014 through mid-May 2018. As I noted during my trial testimony, Dr. David's damages analysis included revenues and profits from Yeast Price Component (per kilogram) as well as MGT Fees. [REDACTED]

²⁰ Therefore, I have adjusted the gallons of ethanol produced to 8,611,610,304. See Exhibit 1.

²¹ Although referenced as a potential methodology in the David Declaration (p. 4), there is no rationale to calculate an effective royalty as a percentage of Lallemand's Yeast Price Component. As discussed at trial, [REDACTED]

[REDACTED] (5/14/18 A.M. Trial Transcript, 18:20-19:21, 20:8-16)

²² David Declaration, pp. 5-6.

²³ David Declaration, p. 4.

13. The effect on the value of the payment due DSM for Lallemand's sales of the Accused Products during the Intervening Period of the yeast component can be demonstrated by using the effective per thousand-gallon rate that results from the jury award. Figure 1 below shows that, in total, Lallemand's customers produced approximately [REDACTED] of ethanol during the trial damages period. Based on the jury award of \$14.5 million, the effective royalty per thousand gallons of output equals [REDACTED].

14. For purposes of comparison, I have applied the rate of [REDACTED] to Defendants' customers' gallons of output from October 16, 2017 through mid-May 2018. This calculation results in total damages during that period [REDACTED]²⁴

Figure 1	
<i>Based on Gallons Produced Using the Accused Products</i>	
Judgment Entered In Favor of DSM:	\$14,500,000
'000s of Gallons of Ethanol Produced (Aug. 2014 - Oct. 15, 2017)	[REDACTED]
Effective Rate of DSM's Trial Damages (Per '000 Gallons)	<hr/> [REDACTED]
'000s of Gallons of Ethanol Produced (Oct. 16, 2017 - May 16, 2018)	[REDACTED]
Payment Due for Additional Sales	<hr/> [REDACTED]

III. Post-Trial Royalties

15. My analysis of damages during the Intervening Period relates to Lallemand's sales through the date of the final judgment. However, the '998 patent does not expire until November 2030.²⁶ Thus, assuming Lallemand continues selling the Accused Products, DSM will be due payments in the future for Lallemand's continued use of the technology. I have been asked to provide an analysis of certain factors related to the determination of an appropriate royalty that would compensate DSM for Lallemand's ongoing use of technology claimed in the '998 patent. In particular, in evaluating post-judgment royalties, I have considered how each party's respective bargaining positions may have changed since mid-2014 when the initial hypothetical

²⁴ Exhibit 3.

²⁵ I note that reducing damages during the Intervening Period also necessarily reduces the prejudgment interest as presented in the David Declaration.

²⁶ Initial Green Report, p. 28.

negotiation about which I testified at trial would have occurred. I have also noted where the conclusions herein differ from those expressed in the David Declaration, or in Plaintiffs' Post-Trial Damages Brief.

A. Royalty Base

16. Royalties for the use of patented technologies generally involve the determination of a royalty base and a royalty rate to apply to the chosen base. A royalty base will usually reflect some measure of sales, often units or revenues, while the rate will provide the compensation term for the chosen base. In my experience, the base is often determined by consideration of the product and the role of the patented technology in the product. In circumstances where the patented technology effectively represents the entire value of the product, a base of revenues may be appropriate. However, in circumstances in which the patented technology is only one component of a multicomponent product, or could be included in a multicomponent product, a royalty structured as a fixed dollar amount per unit would more appropriately reflect the use of the technology in each unit sold. This is because the value (and hence the revenues received) may reflect technologies or other aspects of the product unrelated to the licensed patent.

17. There are a number of potential royalty bases that could be used to determine ongoing royalties due DSM from Lallemand. These include a percentage of revenues, dollars per kilogram of yeast sold, or dollars per thousand gallons of output. The David Declaration computes ongoing royalties on a percentage-of-revenue basis that includes both the Yeast Price Component and the MGT Fees Lallemand receives from the sales of the Accused Products. As discussed below, the use of Lallemand's revenue as a base for ongoing royalties is not appropriate for a number of reasons. Thus, in my opinion, a royalty base of gallons of output is appropriate for measuring ongoing royalties.

1. The Accused Products Are Multicomponent Products

18. The Accused Products are multicomponent products in that they include, among others, non-infringing enzyme reduction technology that was part of Lallemand's original TransFerm product. In addition, other proprietary technologies, [REDACTED] are included in the price paid by Lallemand's customers. Thus, the use of a royalty base of overall revenues would need to properly allocate the portion of the revenues that are associated with the use of the '998 patented technology, as distinguished from other features included in the product. In the absence of an ability to apportion revenues to only reflect those associated with the patented technology, the royalties would likely result in overcompensation for the use of the patented technology.

2. [REDACTED]

19. Second, as discussed above, Lallemand charges its customers [REDACTED]

3. Revenues from Future Accused Products Would Reflect Additional Value Not Related to the Patented Technology

20. A royalty base of revenues does not provide flexibility for the inclusion of additional technologies in future products that may continue to use the '998 patented technology. Lallemand has a history of successfully developing and marketing at least two genetically modified yeast products (YP3 [REDACTED]), while continuing ongoing sales and marketing for two others (TransFerm and TransFerm Yield+).²⁷ To the extent Lallemand and Mascoma incorporate additional technologies into the Accused Products in the future (and receive additional technology fees as a result), a percentage-of-revenues royalty may result in additional royalties being paid on these revenues. This would overstate the value of the '998 patented technology to Defendants' products. For example, were Defendants to incorporate other cost-saving technologies (like the glucoamylase expression currently provided), the resulting revenues would be unrelated to the use of the '998 patented technology in the Accused Products.

4. A "Dollars Per Gallon" Royalty Based on Gallons of Output Is Consistent with [REDACTED]

21. Plaintiffs' only licensing of its recently-developed strains supports the use of gallons of production as a measure on which to base costs. [REDACTED]

5. A "Dollars Per Gallon" Royalty Can Be Reliably Calculated and Is Consistent with Lallemand's Actual Practice

22. The David Declaration rejects an ongoing royalty based on gallons, which it claims [REDACTED]

⁰ I disagree. This conclusion is based on purported difficulties in ascertaining the [REDACTED]

²⁷ David Declaration, p. 10. See also, LAL00228333 and LAL00228334 for first sales of Lallemand strains.

²⁸ Exhibit 30 to the Thakrar Declaration, June 20, 2018 (DSM00080429 – 433, at 432).

²⁹ DTX 1018 at DSM00001190-91.

³⁰ David Declaration, p. 4.

actual number of gallons produced by Lallemand's customers. [REDACTED]

23. The David Declaration notes that Lallemand's [REDACTED] for the Accused Products is a function of two things: [REDACTED]

24. The number of gallons produced using the Accused Products can be estimated by multiplying the reported fermentation cycle counts by the sizes of the plants being operated. [REDACTED] Mr. Angus Ballard has testified that it is recorded and tracked in Lallemand's ordinary course financial records.³² In addition, both the nameplate production and the operational capacity of ethanol fermentation plants in the United States are publicly available and tracked by the Renewable Fuels Association.³³ Thus, it is reasonable to assume that gallons of output is a reliable (and auditable) measure on which to base ongoing royalties.

B. Royalty Rate

25. In addition to evaluating a royalty base, it is necessary to determine a royalty rate that is associated with the base. The royalty rate necessarily reflects a measurement of the fair portion of the benefit to the licensee of the use of the patented technology as measured by the chosen royalty base. As noted above, the jury's verdict results in an effective royalty rate of [REDACTED] of ethanol produced. I have used the effective royalty rate implied by the jury's verdict as the starting point of my analysis of an ongoing royalty rate.

26. I understand that a determination of post-judgment royalties also requires analysis of the negotiating positions of the parties at the time judgment was entered compared to the circumstances of the hypothetical negotiation presented to the jury at trial. The David Declaration asserts that the following changes to the parties' negotiating positions are relevant to consider for post-trial damages:³⁴

- Findings of validity of the '998 patent and infringement by Defendants;

³¹ David Declaration, p. 4.

³² LAL00228333. See also Declaration of Angus Ballard, July 19, 2018 ("Ballard Declaration"), p. 8.

³³ See, for example, RFA 2017 Ethanol Industry Outlook, *accessed at* <http://www.ethanolrfa.org/wp-content/uploads/2017/02/Ethanol-Industry-Outlook-2017.pdf>. In addition, many manufacturers publish the output capacity of their facilities; see, for example, <https://www.poet.com/plants>.

³⁴ David Declaration, pp. 13-14.

- Recent and ongoing efforts by DSM to commercialize a genetically modified yeast strain also offering yield-enhancement;
- A shorter remaining term-life of the patent-in-suit and absence of commercialized design-arounds; and
- The ongoing performance of Lallemand's Accused Products in the marketplace.

The following presents my analysis of these allegedly changed circumstances and the extent to which any changes might affect the outcome of a negotiation between the parties for ongoing rights to the '998 patent.

1. Findings of Validity and Infringement Do Not Substantively Alter the Results of the Hypothetical Negotiation

27. The David Declaration asserts that, in the hypothetical negotiation presented at trial, "the parties were assumed to be willing participants in a negotiation with a requirement to reach an agreement." It contrasts this with the post-trial circumstance, in which Lallemand has been adjudged an infringer of a valid patent facing a potential injunction and a finding of willfulness for its ongoing infringement."³⁵ At trial, Dr. David and I both testified that the parties to the hypothetical negotiation assume: (1) validity and infringement of the patent-in-suit; (2) full knowledge of the others' financial circumstances; and (3) a requirement to reach an agreement.³⁶

2. DSM's Ongoing Attempts to Commercialize eBoost Do Not Warrant an Increased Ongoing Royalty

28. In his post-trial declaration, Mr. Thakrar indicated that, since trial, DSM has made further inroads towards commercialization of a strain for ethanol production. Specifically, [REDACTED] DSM claims to have since launched a yeast product called eBoost for use by first-generation bioethanol producers.³⁷ [REDACTED] which purportedly provides ethanol yield-enhancement. According to Mr. Thakrar, commercial trials indicate that eBoost [REDACTED] provides yield enhancement beyond that of the Accused Products.³⁸

29. [REDACTED] DSM also presented the product to the industry at a June 2018 tradeshow in Omaha, Nebraska. In his declaration,

³⁵ David Declaration, p. 13.

³⁶ 5/11/2018 A.M. Trial Transcript, 98:3-16, 99:20-101:2 (Dr. David's testimony); 5/14/18 A.M. Trial Transcript, 40:18-41:4, 68:20-24 (my testimony).

³⁷ Thakrar Declaration, p. 1.

³⁸ Thakrar Declaration, p. 11; see also,

<https://www.dsm.com/corporate/media/informationcenter-news/2018/06/2018-06-12-dsm-launches-innovative-fermentation-solution-that-improves-ethanol-production.html>.

Mr. Thakrar, claimed that the presentation was representative of the fact that it has now been fully commercialized as a GMO yeast strain, and is thus competing with Lallemand's Accused Products.³⁹

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30. In his declaration, Dr. David indicates that, at the time of the original hypothetical negotiation in August 2014, "DSM was a potential competitor to Lallemand, although with no commercial product."⁴¹ He contrasts this with the current circumstance, in which DSM has purportedly received approval for sale of, and launched, a competing product.⁴² Based on this assertion, Dr. David concludes that, at the negotiation for post-trial royalties, DSM would be competing with Lallemand's Accused Products.⁴³ However, based on my review of the facts surrounding DSM's ongoing attempts to commercialize *eBoost*, I believe that the conclusions presented in the David Declaration regarding the evolution of the parties' competitive relationship are overstated.

As an initial matter, the jury was informed about potential competition at trial. For example, Dr. David testified that, in 2014, there was a "possibility" that DSM would sell a product that directly competed with Lallemand's Accused Products.⁴⁴

31. In light of the testimony provided during the damages trial, it is reasonable to conclude that the jury's damages verdict took into account that the parties anticipated eventually competing for some sales. Thus, the jury award represents an appropriate benchmark from which to assess post-trial damages, even in light of the evolving commercialization of *eBoost*.

32. As Mr. Ballard testified at trial, Lallemand has existing client relationships that allow it to reach customers otherwise inaccessible to a new market entrant like DSM.⁴⁵ In his declaration, Mr. Thakrar notes that the market is populated by a "small, fixed number of potential customers."⁴⁶ Lallemand's history selling both non-GMO yeast and GA-expressing, non-infringing TransFerm has generated numerous customer relationships. As a new entrant, DSM has no such commercial ties, and thus would be less likely to succeed in marketing its product regardless of Lallemand's infringing activities. DSM claims that, although its product offers purportedly improved yield enhancement, customers are hesitant to switch yeast providers.⁴⁷ However, neither Dr. David nor Mr. Thakrar has reliably assessed whether DSM would succeed in overcoming this "stickiness" any more effectively were Lallemand instead providing exclusively non-infringing strains (such as TransFerm) to its customer base.

³⁹ Thakrar Declaration, pp. 12-13.

⁴⁰ Thakrar Declaration, p. 10.

⁴¹ David Declaration, p. 13.

⁴² David Declaration, p. 10.

⁴³ David Declaration, pp. 13-14.

⁴⁴ 5/11/18 A.M. Trial Transcript, 130; 5/11/18 P.M. Trial Transcript, 7-9, 18.

⁴⁵ 5/11/18 P.M. Trial Transcript, 113:21-114:5, 125:21-127:1.

⁴⁶ Thakrar Declaration, p. 13.

⁴⁷ Thakrar Declaration, p. 13.

33. [REDACTED] As noted in my initial report, [REDACTED]

[REDACTED] During the past 18 months, multiple yeast producers have launched products incorporating enzyme expression for first-generation ethanol production. It is therefore possible that many of ethanol manufacturing facilities may be unwilling or unable to revert to a yeast strain that requires a modification of the fermentation process to reintroduce exogenous glucoamylase. However, as discussed both in my initial report and presented at trial, the Accused Products (and their predecessor, TransFerm), all incorporate GA-expressing technology.⁴⁹

34. I understand that in addition to Lallemand and DSM, two other yeast producers now offer yeast that are marketed as having ethanol-yield-enhancing capabilities. DuPont has released its SYNERXIA® THRIVE Fermentation System, which is marketed as increasing yield by up to 2%.⁵⁰ Novozyme offers its Innova® Drive yeast, which is marketed as increasing fermentation due to increased robustness.⁵¹

35. DSM's success in the market may also partially be due to (rather than in spite of), Lallemand's historic commercialization of TransFerm and the Accused Products. Many of the eBoost contracts contemplated by DSM and discussed in the David and Thakrar [REDACTED]

[REDACTED] Due to Lallemand's actions, DSM faces no such obstacle, as potential customers will often already be familiar with the concept of [REDACTED]

[REDACTED] Moreover, Lallemand has familiarized the market with yield-enhancing technology, with risk-averse plants choosing not to convert to a new technology.

36. Lastly, I note that DSM's forecasts of its expected revenues and incremental profits from future sales of eBoost are speculative.⁵⁵ Mr. Thakrar indicated in his declaration that DSM anticipates that its profit margin on the sale of eBoost [REDACTED]

⁴⁸ Initial Green Report, p. 32.

⁴⁹ Initial Green Report, pp. 12-13.

⁵⁰ Ballard Declaration, pp. 4-5.

⁵¹ Ballard Declaration, pp. 4-5.

⁵² Thakrar Declaration, p. 11.

⁵³ Thakrar Declaration, p. 11.

⁵⁴ 5/11/18 P.M. Trial Transcript, 106:10-107:2, 110:25-112:10.

⁵⁵ Exhibit 39 to the Thakrar Declaration (DSM00080563).

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Thus, the analysis of DSM's potential future lost profits as disclosed in the David Declaration is speculative.

37. Despite DSM's ongoing attempts to commercialize the GMO strains arising from its there is insufficient evidence at this time of a material change in the competitive relationship of the parties in early 2018 compared to the original hypothetical negotiation in August 2014.

3. The Shorter Patent Life Does Not Indicate that the Parties Would Negotiate a Higher Royalty

38. As discussed, the '998 patent expires in November 2030. At trial, the parties agreed that waiting until patent expiration was not a viable strategy, and that at the hypothetical negotiation, they would be forced to negotiate a royalty that would likely remain in place for more than a decade. Thus, to the extent Lallemand intended to continue selling the Accused Products, it would expect to pay royalties going forward for the use of the '998 patent. This remains true. I disagree with the conclusion in the David Declaration, which states that "a shorter remaining term, with no emergence of an available non-infringing alternative, indicates a higher royalty rate."⁵⁸ This assessment is inherently flawed. Were this the case, DSM would expect to receive increasingly higher royalties as the '998 patent approached expiration.

In addition, that Lallemand has not brought a non-infringing alternative to market is not reflective of an inability to design around the patent-in-suit.

39. It is also fair to assume that the jury may not have fully agreed with my trial opinion that a non-infringing alternative was available and acceptable as of the date of the hypothetical negotiation because it did not accept my royalty rate of , but rather awarded damages .

⁵⁶ Thakrar Declaration, p. 17 and Exhibit 39.

⁵⁷ DSM00080562.

⁵⁸ David Declaration, p. 14.

4. *Increased Sales of Defendants' Accused Products to [REDACTED] May Result in Overcompensation to DSM*

40. The David Declaration includes discussion of increasing sales volumes as an indication that a higher ongoing rate may be appropriate.⁵⁹ However, these increased volumes do not necessarily reflect increased sales success attributable to the '998 patented technology.

41. Moreover, [REDACTED] may instead indicate that the effective royalty based on the jury award may overcompensate DSM for Lallemand's ongoing accused sales. [REDACTED]

42. To the extent the proportion of Lallemand's sales to [REDACTED] the effective royalty implied by the jury award (and subsequent judgment) may overstate the amount appropriate to compensate DSM for any continued infringement by Lallemand. [REDACTED]

⁶¹

43. During the trial damages period, [REDACTED] sales make up only a small portion of Lallemand's business, may overstate the appropriate compensation for Lallemand's ongoing infringement.

C. Conclusion

44. Based on the foregoing considerations, I believe that the royalty most appropriate to compensate DSM for Lallemand's ongoing infringement is not based on a percent of Lallemand's total revenues from the sales of products that include the Accused Products, but

⁵⁹ David Declaration, p. 12.

⁶⁰ David Report, pp. 14, 43 and Appendix 6.

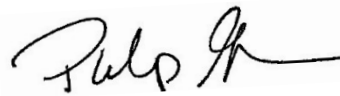
⁶¹ Ballard Declaration, p. 3.

⁶² Exhibit 1.

⁶³ Exhibit 2.

rather on gallons of output produced using the Accused Products. Such a royalty best reflects the economic value of the '998 patented technology to the Accused Products as determined by the jury. Moreover, my analysis of potential changes in the bargaining power of the parties indicates that the relative negotiating position of each party remains consistent with the circumstances presented by Dr. David and myself at trial. In my opinion, a rate equal to the effective rate of [REDACTED] evidenced by the jury award is a reasonable estimate of the result of a negotiation between DSM and Defendants as of the date of final judgment.

SIGNED UNDER THE PENALTIES OF PERJURY THIS 20TH DAY OF JULY 2018.

A handwritten signature in black ink, appearing to read "Philip Green", written over a light gray rectangular background.

Philip Green